

REMARKS

Claims 269-275 have been canceled. Claim 260 has been amended for clarification purposes and places the application in better form for appeal. No new matter has been added. No new issues have been raised. It is respectfully requested that the amendment be entered.

Claim Rejections - 35 USC 102

## Paragraph 3 of Office Action

Claims 269-271 and 274-275 are rejected under 35 USC 102(e) as being anticipated by Gonzalez et al (US 5,854,102).

Claims 269-271 and 274-275 have been canceled. Applicant requests that the rejection be removed.

## Paragraph 4 of Office Action

Claims 269-275 are rejected under 35 USC 102(e) as being anticipated by Ovshinsky (US 5,687,112).

Claims 269-275 have been canceled. Applicant requests that the rejection be removed..

## Paragraph 6 of Office Action

Claims 269-275 are rejected under 35 USC 102(b) as being anticipated by Ovshinsky et al (US 5,414,271).

Claims 269-275 have been canceled. Applicant requests that the rejection be removed.

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Claim Rejections - 35 USC 103

## Paragraph 8 of Office Action

Claims 258-268 are rejected under 35 USC 103(a) as being unpatentable over Gonzalez et al (US 5,854,102) in view of Tanashashi (US 6064,084).

To establish a prima facie case of obviousness, there must be some suggestion or motivation to combine reference teachings.

Gonzalez (Figure 30) discloses a memory element, comprising: a dielectric material having an opening; a conductive material 162 of tungsten lining the sidewall surface of the opening; and a programmable resistance material 164 of chalcogen coupled to a top surface of the conductive material 162. However, Gonzalez does not teach or suggest that the conductive material 162 may be a cup-shape having a second dielectric material formed within the opening of the cup-shape.

Tanahashi is directed to a DRAM memory device. Figure 3C of Tanahashi shows a conductive film 53 which serves as a contact structure, providing an electrical pathway to an interconnection layer 55. The interconnection layer preferably serves as a bit line for the DRAM device.

Tanahashi provides no teaching, suggestion or motivation of using the contact structure 53 (as shown in Figure 3C) as a contact structure for providing an electrical pathway to a programmable resistance memory material. In fact, Tanahashi teaches away from this combination. An object of the Tanahashi invention (see column 3, lines 62-65) is to provide a semiconductor device with reduced contact resistance.

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Tanahashi teaches that a limited contact area is an undesirable characteristic of a contact structure and Tanahashi desires to increase the contact area.

In contrast to Tanahashi, an object of applicant's invention is to provide a memory element having reduced programming energies (see applicant on page 6, lines 7-8). As explained by applicant, this may be achieved by decreasing the contact area between the programmable resistance memory material and the electrical contact structure (see, for example, applicant's specification: page 25, line 23 - page 26, line 5; page 36, lines 5-16 explaining desirability of decreasing contact area). Therefore, as taught by applicant, a limited contact area is a desirable characteristic of a contact structure used in combination with a programmable resistance material.

Hence, not only is there no suggestion or motivation to combine the teachings of Gonzalez with those of Tanahashi but, in fact, the teachings of Tanahashi actually teach away from this combination. The combination of Gonzalez and Tanahashi is thus improper.

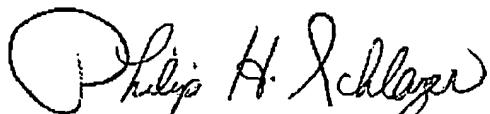
Additionally, regarding applicant's claim 260, it is respectfully noted that conductive material 53 (as shown in Figure 3C of Tanahashi) is formed over the entire bottom surface of hole 52A. Regarding applicant's claim 261, it is respectfully noted that Tanahashi fails to teach or suggest that hole 52A may be replaced by a trench.

The rejection of claims 258-268 under 35 USC 103(a) as being unpatentable over Gonzalez et al (US 5,854,102) in view of Tanahashi (US 6,064,084) is improper and applicant respectfully requests it be removed.

**SUMMARY**

Claims 269-275 have been cancelled. In view of the above remarks, the remaining claims 258-268 are in condition for allowance. Applicant respectfully requests reconsideration, withdrawal of the outstanding rejections, and notifications of allowance. Should the Examiner have any questions or suggestions regarding the prosecution of this application, he is asked to contact applicant's representative at the telephone number listed below.

Respectfully submitted,



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